



INL engineer Brent Dixon is a systems analyst for nuclear fuel cycle technologies projects at Idaho National Laboratory and also is active with the local planning commission.

INL engineer learns from public service job

By [Jo Seely](#) and [Cathy Koon](#) for *INL Communications & Governmental Affairs*

An Idaho National Laboratory (INL) engineer is learning lessons from a volunteer job with the Idaho Falls Planning Commission that he now applies to his work in the nuclear industry.

Brent Dixon, a lead systems analyst for the Department of Energy's Fuel Cycle Technologies (FCT) program at INL, uses his technical expertise when considering new land use proposals in Idaho Falls. Working with the legal codes and public opinion of Idaho Falls citizens has in turn prepared him with skills he now applies to nuclear energy. It's one way an engineer can use his knowledge of the world around him for many different purposes.

"One of the things that my work with the city helps me to understand is how the public perceives things and the idea that just because this is a technically wonderful solution, it doesn't mean it's a viable solution," said Dixon.

Each month, Dixon meets with the other members of the planning commission to conduct public hearings to review all applications for annexation, zoning and use permits. Dixon says that this is the time to get all the issues out in the open while giving everyone the opportunity to voice their opinion. From there, the commission makes recommendations to the city council.

"If all sides have a chance to be heard, then people are usually reasonable and they see that a compromised position will be a win-win," said Dixon, who is in his second five-year term on the commission.

Dixon has lived in Idaho Falls, working at INL for 30 years. "The lab was a good fit," he said. After graduating from the Massachusetts Institute of Technology with a degree in civil engineering, Dixon knew the larger cities weren't for him. Growing up in Lakeview, Ore., similar in size to Arco, Idaho Falls was the right answer to the two extremes.

Back in the West, Dixon continues to engage in the activities he grew up with: hiking, fishing, gardening and skiing. The time spent away from his work within FCT and the planning commission is spent enjoying these activities and more with his wife, Patti, and their three kids.

While Dixon also enjoys solving number puzzles in his spare time, it's solving puzzles within FCT, and for the city as a member of the planning commission, that fills most of his days. In both the FCT and the planning commission, the issues are not straightforward.

"You have to look at the technology and the politics behind it; you have to look at why people support the positions that they do," he said.

This applies to both the commission and Dixon's work at INL. Just as there are many constituents with needs, there are many challenges within FCT, which is a grand effort toward finding the best possible solution for nuclear energy. Made up of several campaigns, FCT encompasses every step of the nuclear fuel cycle. Dixon helps bring them all together.

"I like to be on a steep learning curve," said Dixon. "When you put the many different campaigns together, the fuels campaign, reactors, separations, etc., it requires that you understand enough about all of those to see how they are contributing to the system and the way it's behaving."



In his spare time, Dixon uses his technical expertise to work with Idaho Falls city leaders on land use proposals.

Dixon helps communicate the FCT technical reports to DOE, consolidating them into higher level reports. Congress is another recipient of his reports, which are used by national policymakers to make more informed decisions regarding nuclear energy.

Just as Dixon makes comments to the city council when ordinances aren't working, or making



Dixon uses his expertise to help communicate technical information in reports for the U.S. Department of Energy.

sense, his reports inform policymakers of what is working and what isn't. As technology continues to advance, regulations should reflect these technical measures. Often they don't.

"Technically, you're sometimes in a different position than legally," said Dixon. "They are very different perspectives, but they both matter. In fact, the legal one matters more."

In 2004, Dixon played a role translating the technical into policy recommendations by helping organize the Decision-Makers' Forum on a Unified Strategy for Nuclear Energy. The forum brought together some of the "heavy hitters" of nuclear energy. National laboratory directors, industry CEOs and utility company presidents all came together to discuss what was needed.

"What came out of it was an eight-page pamphlet that basically said this is what these people feel needs to be done with energy policy," said Dixon, who helped bring together the final draft. "The statement wasn't a political perspective; it was practically speaking what needed to be done. They know what needs to be done to make their businesses viable and they could see the future of where energy was going in the U.S."

The pamphlet was then given to the "political decision-makers," made more powerful by the entities supporting the document. While Dixon said the pamphlet is one of a number of endeavors trying to influence policy every few years, it did mention objectives that were soon realized, such as the loan guarantee program.

"That effort and other efforts were looking at the road blocks, bringing them out into the open, explaining why we felt the government had a role to do something about it," said Dixon. "At the same time, we looked at what industry's responsibilities would be and if both did their part, we could get over that road block and get on to the next step."

Dixon had a number of roles that prepared him for this work. In August 1980, he started at INL in applied mechanics doing some work for the Nuclear Regulatory Commission. A switch to artificial intelligence allowed him to work on a research project for Experimental Breeder Reactor-II. Dixon then worked on military projects for several years before returning to DOE in support of its environmental management mission.

"It's given me a broad perspective," said Dixon. "By being involved in a lot of different things, it's caused me to have to learn to look at my current work in a lot of different ways."

Within the Office of Environmental Management, Dixon was the technical lead for science and technology road-mapping methodology development and the systems analysis lead for the National Transportation program. In 2000, Dixon received the President's Award from the National Association of Environmental Professionals and the INL Spirit of Excellence Award for his strategic planning efforts.

Technology road mapping brought him back into nuclear research as he began work with the Generation IV road mapping. Generation IV refers to an international effort that selected six reactor designs to focus on in the decades to come. Through this, Dixon became a part of the policy decisions that followed at INL. One design selected at the Generation IV Forum was the Very High Temperature Reactor (VHTR).

Over the last three years, he has been involved with such international working groups as the International Atomic Energy Agency, where the technical and political balancing is also important.

"Each country has a different policy, and the technical people try to push the group's products to support their country's policy, use their country's planning assumptions," Dixon said. "It has required careful persuasion and coalition-building to keep our technical products politically neutral."

With a move into fuel cycle research, Dixon began his work as a systems analyst within FCT. There, Dixon has applied both his experience at INL and work with decision-makers to the challenges of nuclear energy.

Dixon said in the past, energy security brought nuclear into the political conversation, while today, it is the threat to the environment that has more people talking. It is the work of Dixon and others within FCT that strives to make nuclear the answer to clean energy.

"We're looking at a long-term solution to the waste problem for nuclear," said Dixon. "How do we get the next generation of technology proven? Not only 'does it work?' but 'is it economically competitive?'"

Once again, it is the balance between technical and political, and it is Dixon's experience in both that will only help the effort.

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